



**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY**  
**REGION 5**  
**77 WEST JACKSON BOULEVARD**  
**CHICAGO, ILLINOIS 60604**

**DATE:** AUG 22 2016

**SUBJECT:** CLEAN AIR ACT INSPECTION REPORT  
Dalton Corporation, Warsaw, Indiana

**FROM:** David Sutlin, Environmental Engineer  
AECAB (MN/OH)

**THRU:** Brian Dickens, Section Chief  
AECAB (MN/OH)

**TO:** File

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**BASIC INFORMATION**

**Facility Name:** Dalton Corporation

**Facility Location:** 1900 East Jefferson Street, Warsaw, Indiana 46580

**Date of Inspection:** July 26, 2016

**Lead Inspector:** David Sutlin, Environmental Engineer

**Other Attendees:**

1. Virginia Galinsky, EPA, Environmental Engineer
2. David McIver, IDEM Air Quality Enforcement, Section Chief
3. Michael Schall, Dalton, Manager Environmental Engineering

**Purpose of Inspection:** CAA compliance inspection

**Facility Type:** Gray Iron Foundry

**Regulations Central to Inspection:** Iron & Steel Foundry Major Source MACT (Subpart EEEEE), Title V permit

**Arrival Time:** 9:45 AM

**Departure Time:** 1:30 AM

**Inspection Type:**

- ☒ Unannounced Inspection
- ☐ Announced Inspection

**OPENING CONFERENCE**

- ☒ Credentials Presented
- ☒ CBI warning to facility provided

The following information was obtained verbally from Mr. Schall unless otherwise noted.

**Process Description:**

Dalton is a gray iron foundry with approximately 200-300 employees. The facility produces on-demand castings of various sizes for agricultural and HVAC markets. As of early 2016, they reduced their operation to a single shift, from 4am until 2pm, four days per week.

Scrap, stored under roof and consisting of plate and structural steel, car rotors, and other post-consumer scrap, is visually inspected upon delivery to ensure proper metal type, mainly for operational purposes. A single cupola furnace, with its top extending outside the building, holds anywhere between 250 and 450 tons of material at any given time, depending on which products they are casting. The furnace is filled with metallurgical coke and heated, after which scrap and additional coke are transported in gondolas up an inclined track and charged into an opening  $\frac{3}{4}$  distance up the length of the cupola. The charging area is fully enclosed by the building, and emissions from charging are captured by a canopy hood and exhausted to a baghouse. Charging is continuous until the cupola is filled to capacity or when downstream operations create a bottleneck. The metal is heated to approximately 3000-4000°F with the space above the melt reaching 1400°F. As emissions rise inside the cupola, they are directed through a constricting ring, then rapidly expanded into the path of afterburners which combust the gases at a maximum control temperature of 1450°F to control for CO and VOC. Emissions are then directed through a wet cap atop the furnace to cool the gases and remove particulate matter (PM), a fixed-throat venture scrubber, a wet electrostatic precipitator (Wet ESP), and finally out the stack.

During the week and between shifts, some iron is kept in the furnace, and a cap at the top of the cupola is kept slightly open to atmosphere, although it is periodically closed over night for 20 minute periods while heat is applied in order to keep the iron fluid. On weekends, the furnace is allowed to cool naturally with no iron present.

The foundry has three holding furnaces, two green sand mold lines (Herman 2 and Herman 3) whose shakeout and sand handling operations are controlled by wet collectors and bag houses, and various finishing operations. The foundry also has 30 phenolic urethane cold box core machines, which do not all run simultaneously, and which all vent to a single acid scrubber.

**Staff Interview:**

Mr. Schall stated that the foundry uses large blocks of coke in the cupola, because the use of smaller chunks would lead to coke being blown out the stack due to large updrafts within the furnace. Regarding the afterburners, Mr. Schall stated that preventative maintenance is

performed on them on a weekly basis but he was unsure specifically what is checked. Mr. Schall stated that they do not melt while the cupola cap is open. While discussing the frequency and duration of the cupola cap being left open, Mr. Schall recounted an incident when the exhaust fan bearings were broken and the facility was forced to open the cap while melting continued, until the bearings could be replaced after eight hours. As a long term fix, the facility upgraded to a larger fan that could operate at a lower speed.

Although the Herman 3 runs two jobs in parallel while the Herman 2 only runs a single job at a time, air permitting is identical between the two lines. The facility operates a COMS on one of the uncontrolled cooling line's hood to fulfill a 1993 PSD permit's VOC requirement and a second COMS on the Herman 3 stack. The facility also employs pollution prevention by introducing Sonoperoxone® to the molds and by using DMIPA in place of TEA in the core making process.

Mr. Schall stated that only the two pouring operations and the cupola are subject to the EEEEE MACT and that they are all classified as existing sources under the MACT. Under the MACT rules, Mr. Schall conducts semiannual Method 9 opacity readings for fugitives exiting the building from the cupola and pouring exhausts. A technician performs daily Method 22 opacity readings on stacks and fugitives originating from the Herman 2 line as a consequence of historical issues which occurred on the line. Because these occurred before his tenure, Mr. Schall was not able to elaborate on the nature of the issues or any long term corrective actions resulting from them. The most recent stack test of the cupola was performed in March 2016 to comply with Title V requirements. A retest was performed in June for gases only, and the results will be available in two weeks. A stack test to comply with MACT requirements is planned for 2017. The acid scrubber controlling the core machines was tested within the past year.

#### **TOUR INFORMATION**

**EPA toured the facility:** Yes

#### **Data Collected and Observations:**

We were informed the plant was currently shut down for maintenance, and because of a recent slowdown in business. Operations were planned to resume by August 8<sup>th</sup>. EPA observed all but the finishing operations. Outside the rear of the building, EPA observed scrap and sprue stored under roof. On the roof, EPA observed the 2-chamber Herman 2 baghouse, the top of the Cupola with the wet cap and various stacks. There were large piles of spent mold sand stored in various piles on the ground, both inside and outside the building, which were temporary according to Mr. Schall. We viewed the cupola's opening for charging and the hood above the opening, which Mr. Schall stated was used to capture puffs of smoke from the opening. We also viewed the vibratory sand conveyor which was running dry as part of a maintenance effort, although we noted considerable dust in this area of the facility.

**Field Measurements:** were not taken during this inspection.

## CLOSING CONFERENCE

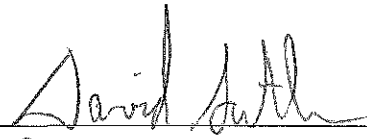
### **Requested documents:**

- Results summary from the March stack tests of the Cupola
- Result summary from the June retest of the Cupola (once available)
- Copy of startup, shutdown, and malfunction plan
- Latest Method 9 readings
- Preventative maintenance inspection sheets for the previous four weeks

**Compliance Assistance:** The facility is considering installing a sand reclamation unit to extend the life of its green sand mold. EPA mentioned that such a unit would be subject to NSPS Subpart UUU.

### SIGNATURES

Lead Inspector:



Date:

8/12/16

Section Chief:



Date:

8/22/16

**Facility Name:** Dalton Corporation

**Facility Location:** 1900 East Jefferson Street, Warsaw, Indiana 46580

**Date of Inspection:** July 26, 2016

**APPENDICES AND ATTACHMENTS**

**I. Appendix A: Photo Log**

- Inspection photos: documented in Appendix A, and maintained at:
- C:\Users\dsutlin\Documents\Compliance\Facilities\Dalton Corporation\Inspection Photos

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**APPENDIX A: PHOTO LOG**

- P7260001.JPG – Herman 2, cope and drag for molds
- P7260002.JPG – Herman 2, station where cope and dragged filled with sand
- P7260003.JPG – Phenolic urethane cold box core machine with pickups to acid scrubber
- P7260004.JPG – Sand overflow pile, outside and damp from rain
- P7260005.JPG – Herman 2 holding furnace
- P7260006.JPG – Herman 2 bag house on roof
- P7260007.JPG – Herman 2 bag house fan
- P7260008.JPG – Cupola wetcap and top cap in open position, Wet ESP stack
- P7260009.JPG – Mold line wet collector stacks
- P7260010.JPG – Tapping trough out of cupola
- P7260011.JPG – Cupola charging area, elevator
- P7260012.JPG – Cupola charging area, charging open
- P7260013.JPG – Cupola charging area, exhaust hood
- P7260014.JPG – Sand shaker conveyor